

Amendments to the Specification:

Please replace the paragraph on page 43, lines 16-21 with the following paragraph:

In addition, the diffusion constants DP for PPi and DA for ATP must also be specified. These values may be estimated from the following exemplar diffusion constants for biomolecules in a dilute water solution (see Weisiger, 1997. Impact of Extracellular and Intracellular Diffusion on Hepatic Uptake Kinetics Department of Medicine and the Liver Center, University of California, San Francisco, California, USA, dickw@itsa.ucsf.edu, <http://dickw.ucsf.edu/papers/goresky97/chapter.html> available online at hypertext transfer protocol://dickw.ucsf.edu/papers/goresky97/chapter.html).

Please insert the following paragraph after the paragraph ending on line 17 on page 33:

-- In one aspect, the invention embodies an apparatus for processing a plurality of analytes, the apparatus comprising: a flow chamber having therein a substrate comprising a plurality of cavitated surfaces that have thereon nucleic acid molecules; fluid means for delivering processing reagents from one or more reservoirs to the flow chamber so that the analytes anchored to the plurality of microparticles are exposed to the reagents; and detection means for detecting a sequence of optical signals from each microparticle of the plurality, each optical signal of the sequence being indicative of an interaction between a processing reagent and the analyte anchored thereto, wherein the detection means is in communication with the cavitated surfaces. The detection means may further comprise signal tracking means for correlating said optical signals from each of the microparticles in each of the digital images to form a sequence. The signal tracking means may comprise a CCD camera, and the analyte may comprise DNA. --